

AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

LISTING OF CLAIMS:

1.-8. (Cancelled).

9. (Withdrawn) An optical device comprising:
a first matrix of organic polymer; and
a group of columnar micro pillars of organic polymer extending from said matrix;

wherein the tip end of said group of columnar micro pillars is in contact with a second matrix, the equivalent diameter of said group of columnar micro pillars is 10 nm through 10 μm with a height of 50 nm through 10 μm , and the aspect ratio of the micro pillars of said group of columnar micro pillars is 4 or more;

said optical device being further characterized in that said group of columnar micro pillars is arranged in such a way as to form at least one optical path, and one or more light incoming sections and one or more light outgoing sections are provided.

10. (Cancelled).

11. (Currently amended) A micro biochip characterized in that a group of micro pillars made of a material including an organic polymer is formed on the matrix surface of an organic polymer, each micro pillar having a bottom end at the matrix

surface and a top end opposite the bottom end, and the equivalent diameter of said micro pillar group is 10 nm through 100 μm with a height of 0.5 μm through 500 μm ; said micro biochip is further characterized in that the aspect ratio of a micro pillar of said micro pillar group is 4 or more; and wherein a plurality of micro pillar groups of organic polymer are provided in a flow path for feeding a sample, the micro biochip including an upper substrate, having a surface, constituting the flow path, and the tip end of each of said micro pillars is kept in contact with the surface of the upper substrate constituting the flow path, wherein a shape of each of the micro pillars is such that the top end of each micro pillar has a smaller sectional area than that of the bottom end.

12. (Previously presented) The micro biochip according to Claim 11 characterized in that the organic polymer is modified on the surface of said micro pillars.

13. (Original) The micro biochip according to Claim 11 characterized in that the organic polymer contains at least one of antigen, sugar chain and bases.

14. and 15. (Cancelled).

16. (Withdrawn) A method for manufacturing a micro biochip according to Claim 27, characterized in that a spacer made of inorganic material is formed on the first substrate and a material membrane is formed on the surface including said spacer, said method comprises the steps of:

pressing said mold against said membrane,

separating said mold, and
bringing a second matrix, constituting said upper substrate, in contact with the tip end of each of said group of columnar micro pillars through said spacer and fixing it thereon.

17.-26. (Cancelled).

27. (Withdrawn) A method for manufacturing a micro biochip having a functioning substrate equipped with a group of columnar micro pillars, the group of columnar micro pillars being arranged on a matrix composed of a material mainly of thermoplastic organic polymer so as to constitute a predetermined pattern, and which is provided using a mold with multiple pits which each have an equivalent diameter of 10 microns or less,

said method comprising steps of:

applying pressure to said mold, having said multiple pits, which is composed of a material harder than the material of which said matrix is composed, so as to press part of said material of which said matrix is composed into said pits,

separating said mold from said material of which said matrix is composed,

stretching at least part of said material, of which said matrix is composed, which has been pressed into said pits, thereby forming the group of columnar micro pillars, and

placing an upper substrate on the group of columnar micro pillars to thereby bring a tip end of each of the columnar micro pillars into contact with the upper substrate to form a flow path between the functioning substrate and the upper substrate.

28. (Previously presented) The micro biochip according to Claim 11 characterized in that said micro pillar group is a group of micro pillars formed by pressing a mold, having pits, against said material such that said material is pressed into the pits, and separating the mold therefrom, thereby to elongate the columnar micro pillars from the matrix surface.

29. (Previously presented) The micro biochip according to Claim 28 characterized in that the organic polymer is modified on the surface of said micro pillars.

30. (Previously presented) The micro biochip according to Claim 29 characterized in that said material of said group of micro pillars includes such an organic polymer that elongates when the mold, having the material of the group of micro pillars therein, is separated therefrom.

31. (Previously presented) The micro biochip according to Claim 28 characterized in that said material of said group of micro pillars includes such an organic polymer that elongates when the mold, having the material of the group of micro pillars therein, is separated therefrom.

32. (Cancelled).

33. (Previously presented) The micro biochip formed by the method of Claim 27, wherein columnar micro pillars, of the group of columnar micro pillars,

have an aspect ratio of 4 or more.

34. (Previously presented) The micro biochip formed by the method of Claim 16, wherein columnar micro pillars, of the group of columnar micro pillars, have an aspect ratio of 4 or more.

35. (New) The micro biochip according to claim 11, characterized in that the group of micro pillars is formed integrally with the matrix surface.

36. (New) The micro biochip according to claim 11, characterized in that the organic polymer of the group of micro pillars is the same organic polymer as that of the matrix surface, and the group of micro pillars is formed integrally with the matrix surface.